

## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[Field of the Invention]

[0001]In the information storage playback equipment which carries out record reproduction of the program information which becomes a disk recording medium in which random access of this invention is possible from either [ at least ] a digital image or a digital sound, and an information storage regeneration method, It is related with the information storage playback equipment which detects the CM part contained in program information, and enabled it to make a televiewer certainly view and listen to a CM part, and an information storage regeneration method.

[0002]

[Description of the Prior Art]Conventionally, as a method of preventing a commercial (CM) skip etc., although indicated to JP,11-187310,A, the method which cannot detect CM position and is made like is known. Hereafter, the composition of this conventional technology and operation are explained, referring to drawing 20. In the terrestrial-TV-broadcasting office where this conventional technology comprises the head office and a branch office, When reorganizing a program in a branch office and sending out to a televiewer, it prevents from performing a commercial skip with reference to queue information by the televiewer side by deleting and sending out queue information including the information on the yne point of the substitution portion of program materials, and an out point.

[0003]Namely, from the head office, detect the queue information detecting circuit 2003 from the digital broadcasting stream transmitted to the branch office, and the queue information which shows the position of a CM part the system controller 2004, Based on this cue signal, a queue information deletion signal is sent to the queue information deleting block 2005, and CM insertion control signal is sent to CM insertion device 2001. CM insertion device 2001 carries out the selection change of the program and CM from the CM server 2002 which were transmitted from the head office according to CM insertion control signal, and sends them to the queue information deleting block 2005. The queue information deleting block 2005 deletes and sends out the queue information from CM insertion device 2001.

[0004]It can avoid operating by this the commercial skip function which skips a commercial part to a key and records queue information on it in a televiewer's image recording and reproducing device.

[0005]

[Problem(s) to be Solved by the Invention]However, even if it enables it to record, without skipping a commercial part by the above methods, at the time of playback, a televiewer is going to fast forward a commercial part and save regeneration time, but. In the tape media

which have spread as a recording medium of the image recording and reproducing device used at home and which are represented by VCR, even if it is fast forwarding reproduction, the CM part will be seen.

[0006]On the other hand, although disc media, such as a magnetic disk, a magneto-optical disc, etc. in which random access is possible, have been called for instead of tape media in these days, In a disk recording medium with random access nature, since not only an ultra high-speed rapid traverse but skip operation is possible, when the CM part of the picture image data recorded on the disk recording medium is skipped, a televiewer will not already look at a CM part.

[0007]By the way, the free broadcast of television provides a televiewer with CM which advertizes predetermined goods, and is managed by receiving the remuneration from the donor of the product to advertize. Therefore, when picture image data comes to be recorded on a disc medium, advertisement of goods which CM makes the purpose cannot be ensured, but the technical problem of it becoming impossible to maintain the system of free broadcast itself occurs. Since a cue signal may be inserted for a program to also change, it may mistake detection of a CM part.

[0008]The purpose of this invention is as follows.

Be made in order to cancel the above-mentioned technical problem, and detect correctly the CM part of the picture image data recorded on the disk recording medium in which random access is possible.

Be sure to provide a televiewer with the information storage playback equipment which enabled it to make it view and listen to a CM part, and an information storage regeneration method.

[0009]

[Means for Solving the Problem]In order to solve an aforementioned problem, the invention of this invention according to claim 1 equips with the following information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a recording medium in which random access is possible.

A CM detection means to detect a commercial (CM is called hereafter) portion in media information which it is going to record.

A recording device which records media information which adds CM identification information which shows that it is a CM part to a detected CM part, and contains the CM part concerned on a recording medium.

A reproduction means which reproduces a recording medium with which the above-mentioned media information was recorded, and CM reproduction recording device which records

whether a CM part in the media information concerned was correctly reproduced at the time of reproduction of the above-mentioned media information, An erasing control means which cannot eliminate the above-mentioned media information which contains the CM part concerned at the time of elimination of an erasing means which eliminates the above-mentioned media information recorded on the above-mentioned recording medium, and the above-mentioned media information recorded on the above-mentioned recording medium if the above-mentioned CM part is not reproduced correctly, and is carried out.

[0010]The invention of this invention according to claim 2 equips with the following information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a recording medium in which random access is possible.

A CM detection means to detect a CM part in media information which it is going to record. A recording device which records media information which adds CM identification information which shows that it is a CM part to a detected CM part, and contains the CM part concerned on a recording medium.

A reproduction means which reproduces a recording medium with which the above-mentioned media information was recorded, and CM reproduction recording device which records whether a CM part in the media information concerned was correctly reproduced at the time of reproduction of the above-mentioned media information, An erasing control means which cannot eliminate only the CM part concerned and is made into an erasing means which eliminates the above-mentioned media information recorded on the above-mentioned recording medium at the time of elimination of the above-mentioned media information recorded on the above-mentioned recording medium if the above-mentioned CM part is not reproduced correctly.

[0011]The invention of this invention according to claim 3 equips with the following information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a recording medium in which random access is possible.

A CM detection means to detect a CM part in media information which it is going to record. A recording device which connects CM parts and is recorded on the above-mentioned recording medium while connecting these editing portions in media information which it is going to record.

A reproduction means which makes possible continuous reproduction of only this editing portion of a recording medium with which the above-mentioned media information was recorded, and continuous reproduction of only the above-mentioned CM part, CM reproduction

recording device which records whether a CM part in the media information concerned was correctly reproduced at the time of reproduction of the above-mentioned media information, An erasing control means which cannot eliminate the above-mentioned media information which contains the CM part concerned at the time of elimination of an erasing means which eliminates the above-mentioned media information recorded on the above-mentioned recording medium, and the above-mentioned media information recorded on the above-mentioned recording medium if a CM part is not reproduced correctly, and is carried out.

[0012]The invention of this invention according to claim 4 equips with the following information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a recording medium in which random access is possible.

A CM detection means to detect a CM part in media information which it is going to record.

A recording device which connects and records CM parts while connecting these editing portions in media information which it is going to record.

A reproduction means which makes possible continuous reproduction of only this editing portion of a recording medium with which the above-mentioned media information was recorded, and continuous reproduction of only the above-mentioned CM part, CM reproduction recording device which records whether a CM part in the media information concerned was correctly reproduced at the time of reproduction of the above-mentioned media information, An erasing control means which cannot eliminate only the CM part concerned and is made into an erasing means which eliminates the above-mentioned media information recorded on the above-mentioned recording medium at the time of elimination of the above-mentioned media information recorded on the above-mentioned recording medium if a CM part is not reproduced correctly.

[0013]The invention of this invention according to claim 5 equips with the following information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a disk recording medium in which random access is possible.

A CM detection means to detect a CM part in media information which it is going to record.

A recording device which records media information which it is going to record on the above-mentioned recording medium.

A reproduction means which reproduces a recording medium with which the above-mentioned media information was recorded, and a reproduction control means which forbids a reproduction skip by the above-mentioned CM part at the time of reproduction of the above-mentioned media information.

[0014]In the information storage playback equipment according to any one of claims 1 to 5, the invention of this invention according to claim 6 the above-mentioned media information, It comes to add a flag which shows a CM part to a digital broadcasting signal, and is characterized by what is been what detects a CM part because the above-mentioned CM detection means detects the above-mentioned flag.

[0015]In information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a recording medium in which random access of the invention of this invention according to claim 7 is possible, Have a main part of information storage playback equipment which consists of the information storage playback equipment according to any one of claims 1 to 5, and a free broadcast detection means by which the above-mentioned media information detects paid broadcasting or free broadcast, and if it is free broadcast, Reproduction of the above-mentioned CM part is made to secure the above-mentioned main part of information storage playback equipment.

[0016]In an information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a recording medium in which random access of the invention of this invention according to claim 8 is possible, Commercials out of media information which it is going to record on the above-mentioned recording medium. (CM is called hereafter) Media information which adds CM identification information which detects a portion and shows that it is a CM part to a detected CM part, and contains the CM part concerned is recorded on a recording medium, When reproducing a recording medium with which the above-mentioned media information was recorded, it is recorded whether the above-mentioned CM part was reproduced correctly, At the time of elimination of the above-mentioned media information recorded on the above-mentioned recording medium, if the above-mentioned CM part is not reproduced correctly, elimination of the above-mentioned media information containing the CM part concerned is controlled.

[0017]In an information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a recording medium in which random access of the invention of this invention according to claim 9 is possible, A CM part is detected out of media information which it is going to record on the above-mentioned recording medium, Media information which adds CM identification information which shows that it is a CM part to a detected CM part, and contains the CM part concerned is recorded on a recording medium, When reproducing a recording medium with which the above-mentioned media information was recorded, if the above-mentioned CM part is not reproduced correctly, elimination to the CM part concerned is controlled at the time of

elimination of the above-mentioned media information which recorded whether the above-mentioned CM part was reproduced correctly, and was recorded on the above-mentioned recording medium.

[0018] In an information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a disk recording medium in which random access of the invention of this invention according to claim 10 is possible, While detecting a CM part out of media information which it is going to record on the above-mentioned recording medium and connecting these editing portions in media information which it is going to record, Connect CM parts, record on the above-mentioned recording medium, and only this editing portion of the above-mentioned media information carries out continuous reproduction only of the CM part, At the time of elimination of the above-mentioned media information which recorded whether a CM part was correctly reproduced at the time of reproduction of the above-mentioned media information, and was recorded on the above-mentioned recording medium, if a CM part is not reproduced correctly, elimination of the above-mentioned media information containing the CM part concerned is controlled.

[0019] In an information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a disk recording medium in which random access of the invention of this invention according to claim 11 is possible, While detecting a CM part out of media information which it is going to record on the above-mentioned recording medium and connecting these editing portions in media information which it is going to record, Connect CM parts, record on the above-mentioned recording medium, and only this editing portion of the above-mentioned media information carries out continuous reproduction only of the CM part, At the time of elimination of the above-mentioned media information which recorded whether a CM part was correctly reproduced at the time of reproduction of the above-mentioned media information, and was recorded on the above-mentioned recording medium, if a CM part is not reproduced correctly, elimination of only the CM part concerned is controlled.

[0020] In an information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a disk recording medium in which random access of the invention of this invention according to claim 12 is possible, A CM part in media information which it is going to record on the above-mentioned recording medium is detected, media information which it is going to record is recorded on the above-mentioned recording medium, and when reproducing the above-mentioned media information, a skip by a CM part is forbidden.

[0021] In the information storage regeneration method according to any one of claims 8 to 12, the invention of this invention according to claim 13 the above-mentioned media information, It

comes to add a flag which shows a CM part to a digital broadcasting signal, and is characterized by what is been what is performed because detection of the above-mentioned CM part detects the above-mentioned flag.

[0022]In an information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in a recording medium in which random access of the invention of this invention according to claim 14 is possible, The above-mentioned media information detects paid broadcasting or free broadcast, and if it is free broadcast, reproduction of the above-mentioned CM part will be secured with the information storage regeneration method according to any one of claims 8 to 12.

[0023]

[Embodiment of the Invention](Embodiment 1) Below, the embodiment of the invention 1 indicated to claim 1 and claim 8 of this invention is described using drawing 1, drawing 2, drawing 3, drawing 4, and drawing 5. This Embodiment 1 is prevented from eliminating a program, if the position information on a CM part is created at the time of program record, it records whether the CM part was correctly reproduced at the time of reproduction and the CM part is not correctly reproduced at the time of program elimination.

[0024]Drawing 1 shows the block diagram of the information storage playback equipment which performs the information storage regeneration method by the embodiment of the invention 1. In drawing 1, at the time of video voice record, a digital image sound is incorporated and a digital image sound is sent to the CM judgment part 102 by the image and the voice input part 101.

[0025]In the CM judgment part (a CM detection means, recording device) 102, it judges whether they are a CM part or this editing portion based on the queue information which shows the knot of a program, the information on the purport that it is a CM part is added to it, and a video voice is recorded on the disk memory part 103.

[0026]At the time of reproduction, based on the user operation from the user interface part 104, reproduction and the erasing control part (a reproduction means, CM reproduction recording device, an erasing means, erasing control means) 105, While taking out program information from the disk memory part 103 and sending digital image voice data to the decode part 106, it is confirmed whether the CM part was played correctly. In the decode part 106, digital image voice data is decoded and an image and voice data are outputted. When elimination directions are received from the user interface part 104, reproduction and the erasing control part 105, An applicable program is not eliminated, if it confirms whether all the CM parts of the applicable program are played, and all CM parts are played, an applicable program is eliminated from the disk memory part 103 and the CM part is not played.

[0027]Next, CM information management table figure in the disk memory part 103 is shown in

drawing 2. In drawing 2, the program name 201 records the name of the recorded program, and the program start sector 202, and a program and the sector 203 show the start of the program recorded with the sector number which is the minimum recording block of a disk, and the position on the disk with which an end is stored. CM1 start sector 204, and CM1 and the sector 205 are a start sector number and an end sector number, and the position in which the CM part of the draft in a program is stored is made into a pair, and they record it. When two or more CM parts exist in a program, CM start sector, and CM and a sector serve as composition which exists in the number-of-times part pair of CM.

[0028]The flow chart figure showing the storing process of CM start - in the CM judgment part 102 at the time of record and a sector is shown in drawing 3. When record of a digital image sound is started, in drawing 3 the CM judgment part 102, While writing a digital image sound in the disk memory part 103, when it confirms whether to be the start of a CM part (Step S301) and the start of a CM part is found, the sector number in which it is stored is stored in CM1 start sector 204 (Step S302). the time of finding the end of a CM part -- (Step S303) -- the sector number is similarly stored in CM1 and the sector 205 (Step S304). And when it continues till the end of record, the above processing is performed and there is no following CM part by returning to (Step S305) and Step S301 when record is not completed, By storing FFFFFFFE in the following CM2 start sector, CM information management table in one program can be created. In this way, the example of done CM information management table is shown in drawing 2 (b).

[0029]As for the program 1, in drawing 2 (b), the whole program is stored in sector number 1FFFFFFF from the sector number 10 million, In the program 1, the CM part shows what those with one and a CM part are stored for from the sector number 10001000 to sector number 10001FFF. Storing of the sector number to the program name and program start sector in CM information management table is performed from the time of record of a digital image sound being started, and storing of the sector number to a program and a sector is performed when record of the above-mentioned digital image sound is completed.

[0030]The flow chart figure showing the program regeneration in the reproduction and the erasing control part 105 at the time of reproduction is shown in drawing 4. If reproduction is started, reproduction and the erasing control part 105 will supervise whether CM1 start sector 204, CM1, and the pair portion of the sector 205 which are shown in drawing 2 are reproduced correctly. In drawing 4, it is supervised whether the sector number which CM1 start sector 204 shows is reproduced first (Step S401). If CM1 start sector 204 is found, the surveillance of CM1 and the sector 205 will be performed, When it detects that the sector number which CM1 and the sector 205 show is reproduced, in order to show that (Step S402, S403), and a CM part were reproduced, CM1 start sector 204 is set to FFFFFFFF which shows ending with processing (Step S404). When skip processing is performed by CM1 and sector 205 detection,



it redoes from start sector detection again. And when record is not completed, by returning to (Step S405) and Step S401, it continues till the end of record and the above processing is performed. CM information management table after CM part reproduction is shown in drawing 2 (c).

[0031]In drawing 2 (c), although the whole program is stored in sector number 1FFFFFFF from the sector number 10 million and the program 1 had one CM part in the program 1, it shows that the CM part was already reproduced.

[0032]The flow chart figure showing the program deletion in the reproduction and the erasing control part 105 at the time of reproduction is shown in drawing 5. The reproduction and the erasing control part 105 which received elimination directions from the user interface part 104 check whether the pair portion with CM1 start sector 204, CM1, and the sector 205 which are shown in drawing 2 is reproduced correctly. In drawing 5, first, a CM part number is set to 1 (Step S501), it confirms whether CM1 start sector 204 of CM part 1 is FFFFFFFE (Step S502), and it is confirmed whether there was any CM part. It confirms whether CM1 start sector 204 is FFFFFFFF (Step S503), and it is confirmed whether the CM part was reproduced noting that there is a CM part, if CM1 start sector 204 is not FFFFFFFE. As a result, when it is FFFFFFFF, the CM part judges that it was reproduced correctly, increases one CM part number, and checks the following (Step S504) CM part. This operation is performed about all the CM parts. If FFFFFFFE is found in CM start sector 204, it will judge that all the CM parts were reproduced correctly, CM information management table will be eliminated, and a program will be eliminated. If values other than FFFFFFFF are found in CM1 start sector 204 in a CM part, it will judge that the CM part which is not reproduced remains and a program will not be eliminated. That is, if CM information management table is in the state of (b) in drawing 2, a program will not be eliminated, but if it is in the state of (c), it will eliminate.

[0033]By such composition, when a televiewer skips a CM part during program playback, a program cannot be eliminated from the disk memory part 103. That is, according to this composition, the information storage playback equipment and the information storage regeneration method which enabled it to make a televiewer certainly view and listen to a CM part even afterwards are realizable.

[0034]Although detection of cue was used as a detecting method of a CM part in explanation of above Embodiment 1, even if it uses speech information, such as detection of a black screen, a stereo, and two-language broadcast, as a detecting method of a CM part, it is feasible similarly.

[0035]Although the sector number of the disk was used for expressing CM start sector, CM, and a sector, even if it uses other values, such as a hour entry and an incremental value based on a standard unit, it is feasible similarly.

[0036]In order to show that it is the last of a CM part, FFFFFFFE was used as a value stored in

CM start sector, but even if it uses other values, it is [ that it cannot produce as a number of CM start sector ] feasible in a similar manner.

[0037]In order to show that the CM part was reproduced correctly, FFFFFFFF was used as a value stored in CM start sector, but even if it uses other values, it is [ that it cannot produce as a number of CM start sector ] feasible in a similar manner.

[0038]Although CM start sector, CM, and a sector were given by table format like drawing 2, even if it holds in the transport stream which is the format of digital image voice data, a program stream, and the data of PES, it is feasible similarly.

[0039]Although the case where a televiewer did not view and listen to a CM part by skip operation was explained, also when it is fast reproduction, it is also feasible that it makes it judge that the CM part is not reproducing correctly, and is made to perform same operation.

[0040]In this Embodiment 1, although information storage playback equipment and an information storage regeneration method with a digital image sound were explained, when making analog video into a digital image and carrying out record reproduction by encoding analog video to a digital image a priori, it is feasible similarly. Although the data to record was explained as video voice data, even if it is only voice data and only picture image data, it is feasible similarly.

[0041](Embodiment 2) Below, the embodiment of the invention indicated to claim 2 and claim 9 of this invention is described using drawing 1, drawing 2, drawing 3, drawing 4, drawing 6, and drawing 7. In the above-mentioned Embodiment 1, in program deletion, the program which reproduction of the CM part is not made leaves only the CM part which is not reproduced, and this Embodiment 2 deletes other portions.

[0042]Drawing 1 shows the block diagram of the information storage playback equipment which performs the information storage regeneration method by the embodiment of the invention 2, and since the composition and operation are the same as that of the above-mentioned Embodiment 1, the explanation is omitted. Drawing 2 shows CM information management table figure, and since the composition and operation are the same as that of the above-mentioned Embodiment 1, the explanation is omitted. Drawing 3 shows the flow chart figure showing the storing process of CM start - in the CM judgment part 102 at the time of record, and a sector, and since the composition and operation are the same as that of the above-mentioned Embodiment 1, the explanation is omitted. Drawing 4 shows the flow chart figure showing the program regeneration in the reproduction and the erasing control part 105 at the time of reproduction, and since the composition and operation are the same as that of the above-mentioned Embodiment 1, the explanation is omitted.

[0043]The flow chart figure showing the program deletion in the reproduction and the erasing control part 105 at the time of reproduction is shown in drawing 6. The reproduction and the erasing control part 105 which received elimination directions from the user interface part 104

check whether CM1 start sector 204, CM1, and the pair portion of the sector 205 which are shown in drawing 2 are reproduced correctly. In drawing 6, first, a CM part number is set to 1 (Step S601), and CM1 start sector 204 of CM part 1 confirms whether to be FFFFFFFE (Step S602), and checks that it is a CM part. It confirms whether CM1 start sector 204 is FFFFFFFF (Step S603), and it is confirmed whether the CM part was reproduced noting that there is a CM part, if CM1 start sector 204 is not FFFFFFFE. As a result, when it is FFFFFFFF, the CM part judges that it was reproduced correctly, increases one CM part number, and checks the following (Step S604) portion. This operation is performed about all the CM parts. If FFFFFFFE is found in CM start sector 204, it will judge that all the CM parts were reproduced correctly, CM information management table will be eliminated, and a program will be eliminated. If values other than FFFFFFFF are found in CM start sector 204 in a CM part, It judges that the CM part which is not reproduced remains, and the program start sector 202, program, and the sector 203 of CM management table are updated to FFFFFFFF (Step S605), and it eliminates except the CM part which is not reproduced. That is, if CM information management table is in the state of (c) in drawing 2, all programs will be deleted, if CM management table is in the state of (b), it will leave only the CM part which is not reproduced and a program will be deleted.

[0044]CM information management table figure where the CM part which is not reproduced remained is shown in drawing 7. In drawing 7, it shows that the program 1 is deleted that the program start sector 202, a program, and the sector 203 are FFFFFFFF(s). CM1 start sector 204, CM1, and a CM part from the value of the sector 205 Those with one, CM part 1 is not played yet but CM1 start sector 204 shows that the CM part of 10001FFF remains in the disk memory part 103 by 10001000 in CM1 and the sector 205.

[0045]When a televiewer skips a CM part during program playback, only the CM part which is not played is left behind to the disk memory part 103, and a televiewer can be made to certainly view and listen to a CM part even afterwards by such composition. Since it leaves the CM part which is not reproduced from a televiewer's position and this editing portion can be deleted, the information storage playback equipment and the information storage regeneration method which enabled it to use a disc recording device efficiently are realizable by seeing a CM part collectively later.

[0046]Although detection of cue was used as a detecting method of a CM part in explanation of above Embodiment 2, even if it uses speech information, such as detection and the stereo of a black screen, and two-language broadcast, as a detecting method of a CM part, it is feasible similarly.

[0047]Although the sector number of the disk was used for expressing CM start sector, CM, and a sector, even if it uses other values, such as a hour entry and an incremental value based on a standard unit, it is feasible similarly.

[0048]In order to show that it is the last of a CM part, FFFFFFFE was used as a value stored in CM start sector, but even if it uses other values, it is [ that it cannot produce as a number of CM start sector ] feasible in a similar manner.

[0049]In order to show that the CM part was reproduced correctly, FFFFFFFF was used as a value stored in CM start sector, but even if it uses other values, it is [ that it cannot produce as a number of CM start sector ] feasible in a similar manner.

[0050]In order to show having deleted the program, FFFFFFFF was used as a value stored in a program start sector, a program, and a sector, but even if it uses other values which must have been produced as a number of a program start sector, a program, and a sector, it is feasible similarly.

[0051]Although CM start sector, CM, and a sector were given by table format like drawing 2, even if it holds in the transport stream which is the format of digital image voice data, a program stream, and the data of PES, it is feasible similarly.

[0052]Although the case where a televiewer did not view and listen to a CM part by the example in the case of skip operation, i.e., skip operation, was explained, also when it is fast reproduction, it is also feasible that it makes it judge that the CM part is not reproducing correctly, and is made to perform same operation.

[0053]In this Embodiment 2, although information storage playback equipment and an information storage regeneration method with a digital image sound were explained, when making analog video into a digital image and carrying out record reproduction by encoding analog video to a digital image a priori, it is feasible similarly. Although the data to record was explained as video voice data, even if it is only voice data and only picture image data, it is feasible similarly.

[0054](Embodiment 3) Below, the embodiment of the invention indicated to claim 3 and claim 10 of this invention is described using drawing 1, drawing 4, drawing 8, drawing 9, and drawing 10. In the regeneration in the above-mentioned Embodiment 1, this Embodiment 3 enables only this editing portion to carry out continuous reproduction only of the CM part.

[0055]Drawing 1 shows the block diagram of the information storage playback equipment which performs the information storage regeneration method by the embodiment of the invention 3. In drawing 1, at the time of video voice record, a digital image sound is incorporated and a digital image sound is sent to the CM judgment part 102 by the image and the voice input part 101. In the CM judgment part 102, it judges whether they are a CM part or this editing portion based on the queue information which shows the knot of a program, these editing portions and CM parts are connected to it, and a video voice is recorded on it to the disk memory part 103. While playback and the erasing control part 105 take out program information from the disk memory part 103 and sending digital image voice data to the decode part 106 based on the user operation from the user interface part 104 at the time of playback, it

is confirmed whether the CM part was played correctly. In the decode part 106, digital image voice data is decoded and an image and voice data are outputted. When elimination directions are received from the user interface part 104, reproduction and the erasing control part 105, An applicable program is not eliminated, if it confirms whether all the CM parts of the applicable program are played, and all CM parts are played, an applicable program is eliminated from the disk memory part 103 and the CM part is not played.

[0056]Next, CM information management table figure in the disk memory part 103 is shown in drawing 8. Drawing 8 shows the management table of this editing portion in one program, and a CM part, the program name 801 records the name of the recorded program, and the pointer 802 to this editing portion and the pointer 803 to a CM part store the pointer to the management table of this editing portion in a program, and a CM part. This editing start sector 804, and this editing and the sector 805, With the sector number which is the minimum recording block of a disk, the start of this editing portion in a program and the position on the disk with which an end is stored are shown, and this editing start sector 804, and this editing and the sector 805 are made into a pair, and are stored. CM start sector 806, and CM and the sector 807 are a start sector number and an end sector number, and the position in which the CM part in a program is stored is made into a pair, and they record it. The CM flag 808 stores the flag which shows the reproduction state of a CM part for every CM part. When two or more of these editing portions and a CM part exist in a program, This editing start sector 804, and this editing and the sector 805 serve as the composition that the pair for the number of times of this editing portion exists in a part for the number of times of CM, and a pair, as for CM start sector 806, CM and the sector 807, and the CM flag 808.

[0057]The flow chart figure showing the storing process of this editing start - [ in the CM judgment part 102 at the time of record ], sector, and CM start - and a sector is shown in drawing 9. If record of a digital image sound is started, the CM judgment part 102 will create the management table of this editing portion and a CM part while writing a digital image sound in the disk memory part 103. In drawing 9, first, if record is started, the pointer 802 to this editing portion and the pointer 803 to a CM part create the pointer to the management table of this editing portion in a program, and a CM part, and store a recording start sector in this editing 1 start sector 804 (Step S901). Then, when it confirms whether to be the start of a CM part (Step S902) and the start of a CM part is found. The present sector number in which it is stored is stored in CM1 start sector 806, and the sector number in front of [ of a present sector number ] one is stored in this editing 1 and the sector 805 (Step S903). the time of finding the end of a CM part -- (Step S904) -- the present sector number is similarly stored in CM1 and the sector 807, the next sector number of a present sector number is stored in this editing 2 start sector 804, and 0 is stored in the CM1 flag 808 (Step S905). When it continues till the end of record, the above processing is performed (Step S906) and this following editing portion

cannot be found, When FFFFFFFE is stored in this editing start sector 804 and there is no following CM part, CM information management table in one program can be created by storing FFFFFFFE in CM start sector 806. In this way, the example of done CM information management table is shown in drawing 8 (b).

[0058]The program 1 consists of these two editing portions and one CM part in drawing 8 (b), and this editing portion 1 is to 10 million to 10007FFF, This editing portion 2 is to 10009000 to 1000FFFF, CM part 1 is stored from the sector number 10008000 to sector number 10008FFF, and not having reproduced the CM part is shown.

[0059]If this editing reproduction is directed from the user interface part 104 at the time of reproduction, reproduction and the erasing control part 105 will follow only this editing portion from the pointer 802 to this editing portion, and will carry out continuous reproduction of this editing portion. If CM reproduction is directed, reproduction and the erasing control part 105 will follow only a CM part from the pointer 803 to a CM part, and will carry out continuous reproduction of the CM part.

[0060]The flow chart figure showing the program regeneration in the reproduction and the erasing control part 105 at the time of reproduction is shown in drawing 4. If reproduction is started, reproduction and the erasing control part 105 will supervise whether the pair portions of CM1 start sector 806 shown in drawing 8, and CM1 and the sector 807 are reproduced correctly. In drawing 4, it is supervised whether the sector number which CM1 start sector 806 shows is reproduced first. If CM1 start sector 806 is found (Step S401), The surveillance of CM1 and the sector 807 is performed (Step S403), and when it detects that the sector number which CM1 and the sector 807 show is reproduced, in order to show that the CM part was reproduced, the CM1 flag 808 is set to 1 (Step S404). moreover -- the case where skip processing is performed by CM1 and sector 807 detection -- (Step S403) -- it redoes from start sector detection again. It continues till the end of record and the above processing is performed (Step S405). CM information management table after CM part reproduction is shown in drawing 8 (c).

[0061]The program 1 consists of these two editing portions and one CM part in drawing 8 (c), and this editing portion 1 is to 10 million to 10007FFF, This editing portion 2 is to 10009000 to 1000FFFF, CM part 1 is stored from the sector number 10008000 to sector number 10008FFF, and since the CM1 flag 808 is 1, the CM part shows that it is ending with reproduction.

[0062]The flow chart figure showing the program deletion in the reproduction and the erasing control part 105 at the time of reproduction is shown in drawing 10.

[0063]The reproduction and the erasing control part 105 which received elimination directions from the user interface part 104 check whether the pair portions of CM1 start sector 806 shown in drawing 8, and CM1 and the sector 807 are reproduced correctly. In drawing 10, first, CM division part number is set to 1 (Step S1001), and it confirms whether CM1 start sector 806 of

CM part 1 is FFFFFFFF (Step S1002), and checks that it is a CM part. It confirms whether the CM1 flag 808 is 1 (Step S1003), and it is confirmed whether the CM part was reproduced noting that it is a CM part, if CM1 start sector 806 is not FFFFFFFF. As a result, when the CM1 flag 808 is 1, the CM part judges that it was reproduced correctly, increases one CM part number (Step S1004), and checks the following portion. This operation is performed about all the CM parts. If FFFFFFFF is found in CM start sector 806, it will judge that all the CM parts were reproduced correctly, CM information management table will be eliminated, and a program will be eliminated. If zero value is found in the CM1 flag 808 in a CM part, it will judge that the CM part which is not reproduced remains and a program will not be eliminated. That is, in drawing 8, if CM information management table is in the state of (b), a program will not be eliminated, but if it is in the state of (c), it will eliminate.

[0064]That is [ when the continuous reproduction of only this editing portion or a CM part is possible, and a televiewer does not look at a CM part, / by such composition, it cannot eliminate a program from the disk memory part 103 ], a televiewer can be made to certainly view and listen to a CM part even afterwards. If it sees from a televiewer, there is convenience [ editing / this ] that continuous reproduction is possible, and since the continuous reproduction of a CM part becomes possible, for CM donor, the information storage playback equipment and the information storage regeneration method which can be given by the diversity of CM program creation are realizable.

[0065]Although detection of cue was used as a detecting method of a CM part in explanation of above Embodiment 3, even if it uses speech information, such as detection of a black screen, a stereo, and two-language broadcast, it is feasible similarly as a detecting method of a CM part.

[0066]Although CM start sector, and CM and a sector are expressed, the sector number of the disk was used, but even if it uses other values, such as a hour entry and an incremental value based on a standard unit, it is feasible similarly.

[0067]In order to show that it is the last of a CM part, FFFFFFFF was used as a value stored in CM start sector, but even if it uses other impossible values as a number of CM start sector, it is feasible similarly.

[0068]In order to show that the CM part was reproduced correctly, 0 and 1 were used as a value stored in CM flag, but if it is a mutually distinguishable value, even if it uses other values, it is feasible similarly.

[0069]Although this editing start sector, this editing and a sector, CM start sector, CM, and a sector were given by table format like drawing 8, Even if it holds in the transport stream which is the format of digital image voice data, a program stream, and the data of PES, it is feasible similarly.

[0070]Although the case where a televiewer did not view and listen to a CM part by the

example in the case of skip operation, i.e., skip operation, was explained, also when it is fast reproduction, it is also feasible that it makes it judge that it is not right reproduction of a CM part, and is made to perform same operation.

[0071]In this Embodiment 3, although information storage playback equipment and an information storage regeneration method with a digital image sound were explained, when making analog video into a digital image and carrying out record reproduction by encoding analog video to a digital image a priori, it is feasible similarly.

[0072]Although the data to record was explained as video voice data, even if it is only voice data and only picture image data, it is feasible similarly.

[0073](Embodiment 4) Below, the embodiment of the invention indicated to claim 4 and claim 11 of this invention is described using drawing 1, drawing 4, drawing 8, drawing 9, drawing 11, and drawing 12. In the program deletion in the above-mentioned Embodiment 3, the program which reproduction of the CM part is not made leaves only the CM part which is not reproduced, and this Embodiment 4 deletes other portions.

[0074]Drawing 1 shows the block diagram of the information storage playback equipment which performs the information storage regeneration method by the embodiment of the invention 4, and since the composition and operation are the same as that of the above-mentioned Embodiment 3, the explanation is omitted. Drawing 8 shows CM information management table figure in one program, and since the composition and operation are the same as that of the above-mentioned Embodiment 3, the explanation is omitted. Drawing 9 shows the flow chart figure showing the storing process of this editing start - [ in the CM judgment part 102 at the time of record ], sector, and CM start -, and a sector, and since the composition and operation are the same as that of the above-mentioned Embodiment 3, the explanation is omitted.

[0075]Drawing 4 shows the flow chart figure showing the program regeneration in the reproduction and the erasing control part 105 at the time of reproduction, and since the composition and operation are the same as that of the above-mentioned Embodiment 3, the explanation is omitted.

[0076]The flow chart figure showing the program deletion in the reproduction and the erasing control part 105 at the time of reproduction is shown in drawing 11. The reproduction and the erasing control part 105 which received elimination directions from the user interface part 104 check whether the pair portions of CM1 start sector 806 shown in drawing 8, and CM1 and the sector 807 are reproduced correctly. In drawing 11, first, CM division part number is set to 1 (Step S1101), and it confirms whether CM1 start sector 806 of CM part 1 is FFFFFFFE (Step S1102), and checks that it is a CM part. It confirms whether the CM1 flag 808 is 1 (Step S1103), and it is confirmed whether the CM part was reproduced noting that it is a CM part, if CM1 start sector 806 is not FFFFFFFE. As a result, when the CM1 flag 808 is 1, the CM part



judges that it was reproduced correctly, increases one CM part number (Step S1103), and checks the following portion. This operation is performed about all the CM parts. If FFFFFFFF is found in CM start sector 806, it will judge that all the CM parts were reproduced correctly, CM information management table will be eliminated, and a program will be eliminated. If zero value is found in the CM1 flag 808 in a CM part, it will judge that the CM part which is not reproduced remains, FFFFFFFF will be written in the pointer 802 to this editing portion (Step S1105), and only this editing portion will be eliminated. That is, in drawing 8, if CM information management table is in the state of (c), all programs will be eliminated, and if it is in the state of (b), only a CM part will remain.

[0077]CM information management table figure where the CM part which is not reproduced remained is shown in drawing 12. In drawing 12, that the pointer 802 to this editing portion is FFFFFFFF shows that this editing of the program 1 is deleted. The pointer 803 to a CM part by FFFFFFFF CM1 start sector 806, CM1, and the sector 807, From the value of the CM1 flag 808, as for those with one, and CM part 1, a CM part is not played yet, but CM1 start sector 806 is 10008000, and CM1 and the sector 807 show that the CM part of 10008FFF remains on a disk.

[0078]That is [ when the continuous reproduction of only this editing portion or a CM part is possible, and a televiewer does not watch a CM program, / by such composition, it cannot eliminate a CM part from the disk memory part 103 ], a televiewer can be made to certainly view and listen to a CM part even afterwards. If it sees from a televiewer, while there is convenience [ editing / this ] that continuous reproduction is possible, eliminate only this editing to which it viewed and listened, can use a disc recording device effectively, and for CM donor, Since the continuous reproduction of a CM part becomes possible, the information storage playback equipment and the information storage regeneration method which can give the diversity of CM program creation are realizable.

[0079]Although detection of cue was used as a detecting method of a CM part in explanation of above Embodiment 4, even if it uses speech information, such as detection of a black screen, a stereo, and two-language broadcast, it is feasible similarly as a detecting method of a CM part.

[0080]Although CM start sector, and CM and a sector are expressed, the sector number of the disk was used, but even if it uses other values, such as a hour entry and an incremental value based on a standard unit, it is feasible similarly.

[0081]In order to show that it is the last of a CM part, FFFFFFFE was used as a value stored in CM start sector, but even if it uses other impossible values as a number of CM start sector, it is feasible similarly.

[0082]In order to show that this editing portion was eliminated, FFFFFFFF was used as a value stored in the pointer to this editing portion, but even if it uses other impossible values as a

number of the pointer to this editing portion, it is feasible similarly.

[0083]In order to show that the CM part was reproduced correctly, 0 and 1 were used as a value stored in CM flag, but if it is a mutually distinguishable value, even if it uses other values, it is feasible similarly.

[0084]Although this editing start sector, this editing and a sector, CM start sector, CM, and a sector were given by table format like drawing 8, Even if it holds in the transport stream which is the format of digital image voice data, a program stream, and the data of PES, it is feasible similarly.

[0085]Although the case where a televiewer did not view and listen to a CM part by the example in the case of skip operation, i.e., skip operation, was explained, also when it is fast reproduction, it is also feasible that it makes it judge that it is not right reproduction of a CM part, and is made to perform same operation.

[0086]In this Embodiment 4, although information storage playback equipment and an information storage regeneration method with a digital image sound were explained, when carrying out digital image record reproduction of the analog video by encoding analog video to a digital image a priori, it is feasible similarly. Although the data to record was explained as video voice data, even if it is only voice data and only picture image data, it is feasible similarly.

[0087](Embodiment 5) Below, the embodiment of the invention indicated to claims 5 and 12 of this invention is described using drawing 2, drawing 3, drawing 13, and drawing 14. This Embodiment 5 creates the position information on a CM part at the time of program record, and forbids the skip operation from a user about a CM part at the time of reproduction.

[0088]Drawing 13 shows the block diagram of the information storage playback equipment which performs the information storage regeneration method by the embodiment of the invention 5. In drawing 13, at the time of video voice record, a digital image sound is incorporated and a digital image sound is sent to the CM judgment part 1302 by the image and the voice input part 1301. In the CM judgment part (a CM detection means, recording device) 1302, it judges whether they are a CM part or this editing portion based on the queue information which shows the knot of a program, the information on a CM part is added to it, and a video voice is recorded on it to the disk recording part 1303. At the time of playback, based on the user operation from the user interface part 1304, playback and the skip control part (a reproduction means, reproduction control means) 1305 take out program information from the disk recording part 1303, and sends digital image voice data to the decode part 1306. In the decode part 1306, digital image voice data is decoded and an image and voice data are outputted. Reproduction and the skip control part 1305 do not perform skip processing, when skip instruction is received from the user interface part 1304, it judges whether the CM part of the applicable program is contained and the CM part is contained in skip within the limits.

[0089]Drawing 2 shows CM information management table, and since the composition and operation are the same as that of the above-mentioned Embodiment 1, the explanation is omitted. Drawing 3 shows the flow chart figure showing the storing process of CM start - in the CM judgment part 1302 at the time of record, and a sector, and since the composition and operation are the same as that of the above-mentioned Embodiment 1, the explanation is omitted.

[0090]The flow chart figure showing the program regeneration in the reproduction and the skip control part 1305 at the time of reproduction is shown in drawing 14. If reproduction is started, reproduction and the skip control part 1305 will supervise the user operation from the user interface part 1304. When user operation is a skip, it is confirmed whether a CM part is in (Step S1401) and the area skipped. In drawing 14, first, the present playback position is defined as Current, and a skip place is defined as  $\text{Target} = \text{Current} + \text{skip width}$  (Step S1402), and a CM part number is set to 1 (Step S1403). And it confirms whether to lap with the section of target-positions Target when the section of CM1 end applied and asked Current for skip width from the present playback position Current from CM1 start (Step S1404). If a lap occurs at both section, it will judge that a CM part is skipped and a skip will be disregarded. If there is no lap in both section, will add 1 to a CM part number (Step S1405), will check the existence of a CM part similarly (Step S1406), and All the CM parts, If the section from Curennt to Target has not lapped, it judges that it is not the skip of a CM part, and skip operation is performed (Step S1407). The above processing is performed till the end of record (Step S1408).

[0091]By such composition, the televiewer cannot skip a CM part during program reproduction, i.e., the information storage playback equipment and the information storage regeneration method which enabled it to make a televiewer certainly view and listen to a CM part are realizable.

[0092]Although detection of cue was used as a detecting method of a CM part in explanation of above Embodiment 5, even if it uses speech information, such as detection of a black screen, a stereo, and two-language broadcast, it is feasible similarly as a detecting method of a CM part.

[0093]Although CM start sector, and CM and a sector are expressed, the sector number of the disk was used, but even if it uses other values, such as a hour entry and an incremental value based on a standard unit, it is feasible similarly.

[0094]In order to show that it is the last of a CM part, FFFFFFFE was used as a value stored in CM start sector, but even if it uses other impossible values as a number of CM start sector, it is feasible similarly.

[0095]When the skip range had a CM part, the skip was forbidden, but even if it makes it skip until just before a CM part, it is feasible similarly.

[0096]Although CM start sector, and CM and a sector were given by table format like drawing

2, even if it holds in the transport stream which is the format of digital image voice data, a program stream, and the data of PES, it is feasible similarly.

[0097]Although the case where a televiewer did not view and listen to a CM part by the example in the case of skip operation, i.e., skip operation, was explained, also when it is fast reproduction, it is also feasible that it makes it judge that it is not right reproduction of a CM part, and is made to perform same operation.

[0098]In this Embodiment 5, although information storage playback equipment and an information storage regeneration method with a digital image sound were explained, when carrying out digital image record reproduction of the analog video by encoding analog video to a digital image a priori, it is feasible similarly.

[0099]Although the data to record was explained as video voice data, even if it is only voice data and only picture image data, it is feasible similarly.

[0100](Embodiment 6) Below, the embodiment of the invention indicated to claim 7 of this invention and claim 14 is described using drawing 3, drawing 15, and drawing 16. This Embodiment 6 detects paid broadcasting or free broadcast, and if it is free broadcast, it will secure reproduction by the information storage playback equipment (the information storage regeneration method according to any one of claims 8 to 12) according to any one of claims 1 to 5.

[0101]Drawing 15 shows the block diagram showing the information storage playback equipment (program playback equipment) which performs the information storage regeneration method by the embodiment of the invention 6. This drawing 15 CM judgment part, the disk memory part 1504, the user interface part 1505, playback, To the main part 1500 of information storage playback equipment which consists of a skip, the erasing control part 1506, and the decode part 1507, by the conditional access control section 1502. The broadcast received in the digital broadcasting receive section 1501 judges paid broadcasting or free broadcast, and it is made to make reproduction of a CM part secure the main part 1500 of information storage playback equipment in the case of free broadcast.

[0102]In drawing 15, at the time of video voice record, in the digital broadcasting receive section 1501. While receiving digital broadcasting and demultiplexing digital broadcasting based on the information from the conditional access control section 1502, if necessary, a digital image and voice data are descrambled and it sends to the CM judgment part 1503. While judging whether it is a CM part or it is this editing portion in the CM judgment part 1503 based on the queue information which shows the knot of a program, Based on the information from the conditional access control section (free broadcast detection means) 1502, a CM part and the information on charged free broadcast are added, and a video voice is recorded on the disk memory part 1504. At the time of playback, based on the user operation from the user interface part 1505, playback, a skip, and the deletion control part 1506 take out program

information from the disk memory part 1504, and sends digital image voice data to the decode part 1507. In the decode part 1507, digital image voice data is decoded and an image and voice data are outputted. Reproduction, a skip, and the deletion control part 1506, Reproduction of the CM part by the information storage playback equipment of a statement and the information storage regeneration method according to any one of claims 8 to 12 is secured to either above-mentioned claim 1 thru/or claim 5 to the skip instruction and program deletion instruction from the user interface part 1505.

[0103]The information storage playback equipment which performs the information storage regeneration method by Embodiment 6 which was adapted for below in the information storage playback equipment (information storage regeneration method of claim 12) of claim 5 is explained.

[0104]CM information management table in the disk memory part 1504 in this Embodiment 6 is shown in drawing 16. Drawing 16 shows the management table of the CM part in one program, the program name 1601 records the name of the recorded program, and it is shown whether the charged free classification 1602 was whether the recorded program was a charge and no charge. The program start sector 1603, and a program and the sector 1604 show the start of the program recorded with the sector number which is the minimum recording block of a disk, and the position on the disk with which an end is stored. CM start sector 1605, and CM and the sector 1606 are a start sector number in which the CM part in a program is stored, and an end sector number, are made into a pair and recorded. When two or more CM parts exist in a program, CM start sector 1605, and CM and the sector 1606 serve as composition which exists in a part for the number of times of CM, and a pair.

[0105]Drawing 3 shows the flow chart figure showing the storing process of CM start - in the CM judgment part 1503 at the time of record, and a sector, and since the composition and operation are the same as that of the above-mentioned Embodiment 1, the explanation is omitted.

[0106]Next, the flow chart figure showing the program regeneration in the reproduction, skip, and the deletion control part 1506 at the time of reproduction is shown in drawing 17. If reproduction is started, reproduction, a skip, and the deletion control part 1506 will supervise the user operation from the user interface part 1505 (Step S1701). The present playback position is defined as Current, a skip place is defined as  $\text{Target} = \text{Current} + \text{skip width}$  (Step S1702), and it is confirmed whether a program is paid broadcasting (Step S1703). When a program is free broadcast and user operation is a skip, it is confirmed whether a CM part is in the area skipped. In drawing 17, a CM part number is first set to 1 (Step S1704). It confirms whether to lap with the section of target-positions Target when the section of CM1 end applied and asked Current for skip width from the present playback position Current from CM1 start (Step S1705). If a lap occurs at both section, it will judge that a CM part is skipped and a skip

will be disregarded. If there is no lap in both section, will add 1 to a CM part number (Step S1706), will check similarly that it is a CM part (Step S1707), and All the CM parts, If the section from Currennt to Target has not lapped, it judges that it is not the skip of a CM part, and skip operation is performed (Step S1708). On the other hand, if a program is paid broadcasting, reproduction, a skip, and the deletion control part 1506 will perform user operation from the user interface part 1505 unconditionally. The above processing is performed till the end of record (Step S1709).

[0107]The information storage playback equipment and the information storage regeneration method which add restriction to reproduction of a CM part, namely, enabled it to make a televiueer certainly view [ even from the time of reproduction or after ] only at the time of free broadcast and listen to a CM part to a televiueer during program reproduction by such composition are realizable.

[0108]Although the adapted example explained the information storage playback equipment of above-mentioned claim 5, or the information storage regeneration method of above-mentioned claim 12 as reservation of reproduction at the time of receiving free broadcast in explanation of above Embodiment 6, Even if it applies the information storage playback equipment according to any one of claims 1 to 4 or the information storage regeneration method according to any one of claims 5 to 11, it is feasible similarly.

[0109](Embodiment 7) Below, the embodiment of the invention 7 indicated to claim 6 of this invention and claim 13 is described using drawing 15, drawing 18, and drawing 19. This Embodiment 7 attaches the flag which shows a CM part to a broadcasting signal in the information storage playback equipment according to any one of claims 1 to 5 and the information storage regeneration method according to any one of claims 8 to 12.

[0110]Drawing 15 shows the block diagram showing the information storage playback equipment (program playback equipment) which performs the information storage regeneration method by the embodiment of the invention 7, and since the composition and operation are the same as that of the above-mentioned Embodiment 6, the explanation is omitted.

[0111]It is the CM judgment part 1503 and enables it to judge a CM part correctly in the embodiment of the invention 7. Digital broadcasting is transmitted by the transport stream which are a series of streams of digital data. Drawing 18 showed the lineblock diagram of the transport stream which is a data format of digital broadcasting, and the transport stream is made of a meeting of the transport data 1801. The transport data 1801 comprises the header 1802 in which various data is stored, and the pay load 1803 in which actual video voice data is stored. The private data 1804 which can store individual data by a sending area exists in the header 1802. The CM flag 1805 which shows that it is a CM part to this private data 1804 is given, and judgment of being a CM part is enabled correctly.

[0112]Next, the flow chart figure showing the CM part detection processing in the CM judgment

part 1503 is shown in drawing 19. In drawing 19, record is started for the present portion at the time of a recording start as this editing portion of a program (Step S1901), and the CM flag 1805 of the transport data 1801 is checked (Step S1902). The CM flag 1805 judges the present transport data 1801 to be CM start, when the present portion is this editing portion in one (Step S1903) (Step S1904), and the CM flag 1805 by one. If the present portion is a CM part (Step S1903), it will progress to the end check of record. The CM flag 1805 judges the transport data 1801 in front of one to be CM end, when the present portion is a CM part in OFF (Step S1905) (Step S1906), and the CM flag 1805 in OFF. If the present portion is this editing portion (Step S1905), it will progress to the end check of record. This processing is repeated till the end of record (Step S1907).

[0113]The information storage playback equipment which can carry out, without making a mistake in detection of a CM part, adds restriction to reproduction of a CM part, namely, enabled it to make a televiewer certainly view and listen to a CM part even from the time of reproduction or after by such composition, and an information storage regeneration method are realizable.

[0114]Although explanation of above Embodiment 7 explained the detecting method of the CM part of digital broadcasting, Also in analog broadcasting, when making analog video into a digital image and carrying out record reproduction by this method by superimposing CM flag on a vertical blanking period, and encoding analog video to a digital image, it is feasible similarly.

[0115]

[Effect of the Invention]As mentioned above, in the information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the recording medium in which random access is possible according to the invention of this invention according to claim 1, A CM detection means to detect the commercial (CM is called hereafter) portion in the media information which it is going to record, The recording device which records the media information which adds the CM identification information which shows that it is a CM part to the detected CM part, and contains the CM part concerned on a recording medium, The reproduction means which reproduces the recording medium with which the above-mentioned media information was recorded, and CM reproduction recording device which records whether the CM part in the media information concerned was correctly reproduced at the time of reproduction of the above-mentioned media information, The erasing means which eliminates the above-mentioned media information recorded on the above-mentioned recording medium, Since it had the erasing control means which cannot eliminate the above-mentioned media information containing the CM part concerned, and is carried out at the time of elimination of the above-mentioned media information recorded on the above-mentioned recording medium if the

above-mentioned CM part was not reproduced correctly, . When a televiewer skips a CM part during program playback, a program cannot be eliminated from a disk recording part, i.e., a televiewer can be made to certainly view and listen to a CM part even afterwards. The advantageous effect to say is acquired.

[0116]In the information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the recording medium in which random access is possible according to the invention of this invention according to claim 2, A CM detection means to detect the CM part in the media information which it is going to record, The recording device which records the media information which adds the CM identification information which shows that it is a CM part to the detected CM part, and contains the CM part concerned on a recording medium, The reproduction means which reproduces the recording medium with which the above-mentioned media information was recorded, and CM reproduction recording device which records whether the CM part in the media information concerned was correctly reproduced at the time of reproduction of the above-mentioned media information, The erasing means which eliminates the above-mentioned media information recorded on the above-mentioned recording medium, Since it had the erasing control means which cannot eliminate only the CM part concerned and is carried out at the time of elimination of the above-mentioned media information recorded on the above-mentioned recording medium if the above-mentioned CM part was not reproduced correctly, When a televiewer skips a CM part during program playback, only the CM part which is not played is left behind to a disk recording part, and a televiewer can be made to certainly view and listen to a CM part even afterwards. Since it leaves the CM part which is not reproduced from a televiewer's position and this editing portion can be deleted, the advantageous effect that a disc recording device can be used efficiently is acquired by summarizing a CM part.

[0117]In the information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the recording medium in which random access is possible according to the invention of this invention according to claim 3, While connecting these editing portions in the media information which it is going to record with a CM detection means to detect the CM part in the media information which it is going to record, The reproduction means which makes possible continuous reproduction of only this editing portion of the recording device which connects CM parts and is recorded on the above-mentioned recording medium, and the recording medium with which the above-mentioned media information was recorded, and continuous reproduction of only the above-mentioned CM part, CM reproduction recording device which records whether the CM part in the media information concerned was correctly reproduced at the time of reproduction of the above-mentioned media information, The erasing means which



eliminates the above-mentioned media information recorded on the above-mentioned recording medium, Since it had the erasing control means which cannot eliminate the above-mentioned media information containing the CM part concerned, and is carried out at the time of elimination of the above-mentioned media information recorded on the above-mentioned recording medium if the CM part was not reproduced correctly, that is [ when the continuous reproduction of only this editing portion or a CM part is possible, and a televiewer does not watch a CM program, / it cannot eliminate a program from a disk recording part ], A televiewer can be made to certainly view and listen to a CM part even afterwards. If it sees from a televiewer, there is convenience [ editing / this ] that continuous reproduction is possible, and since the continuous reproduction of a CM part becomes possible for CM donor, the advantageous effect that the diversity of CM program creation can be given will be acquired.

[0118]In the information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the recording medium in which random access is possible according to the invention of this invention according to claim 4, While connecting these editing portions in the media information which it is going to record with a CM detection means to detect the CM part in the media information which it is going to record, The reproduction means which makes possible continuous reproduction of only this editing portion of the recording device which connects and records CM parts, and the recording medium with which the above-mentioned media information was recorded, and continuous reproduction of only the above-mentioned CM part, CM reproduction recording device which records whether the CM part in the media information concerned was correctly reproduced at the time of reproduction of the above-mentioned media information, The erasing means which eliminates the above-mentioned media information recorded on the above-mentioned recording medium, Since it had the erasing control means which cannot eliminate only the CM part concerned and is carried out at the time of elimination of the above-mentioned media information recorded on the above-mentioned recording medium if the CM part was not reproduced correctly, that is [ when the continuous reproduction of only this editing portion or a CM part is possible, and a televiewer does not watch a CM program, / it cannot eliminate a CM part from a disk recording part ], A televiewer can be made to certainly view and listen to a CM part even afterwards. If it sees from a televiewer, while there is convenience [ editing / this ] that continuous reproduction is possible, Only this editing to which it viewed and listened is eliminated, a disc recording device can be used effectively, and since the continuous reproduction of a CM part becomes possible for CM donor, the advantageous effect that the diversity of CM program creation can be given is acquired.

[0119]In the information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the

disk recording medium in which random access is possible according to the invention of this invention according to claim 5, A CM detection means to detect the CM part in the media information which it is going to record, The recording device which records the media information which it is going to record on the above-mentioned recording medium, Since it had the reproduction means which reproduces the recording medium with which the above-mentioned media information was recorded, and the reproduction control means which forbids the reproduction skip by the above-mentioned CM part at the time of reproduction of the above-mentioned media information, That is [ the televiewer cannot skip a CM part during program reproduction ], the advantageous effect of the ability to make a televiewer certainly viewing and listening to a CM part is acquired.

[0120]According to the invention of this invention according to claim 6, in the information storage playback equipment according to any one of claims 1 to 5 the above-mentioned media information, Come to add the flag which shows a CM part to a digital broadcasting signal, and and the above-mentioned CM detection means, Since the CM part was detected by detecting the above-mentioned flag, the advantageous effect of being able to carry out, without making a mistake in detection of a CM part, adding restriction to reproduction of a CM part, namely, being able to make a televiewer certainly view and listen to a CM part even from the time of reproduction or after is acquired.

[0121]In the information storage playback equipment which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the recording medium in which random access is possible according to the invention of this invention according to claim 7, Have a main part of information storage playback equipment which consists of the information storage playback equipment according to any one of claims 1 to 5, and a free broadcast detection means by which the above-mentioned media information detects paid broadcasting or free broadcast, and if it is free broadcast, reproduction of the above-mentioned CM part is made to secure the above-mentioned main part of information storage playback equipment, since it was made like, The advantageous effect of adding restriction to reproduction of a CM part only at the time of free broadcast, namely, being able to make a televiewer certainly view and listen to a CM part even from the time of reproduction or after to a televiewer during program reproduction is acquired.

[0122]In the information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the recording medium in which random access is possible according to the invention of this invention according to claim 8, The commercials out of the media information which it is going to record on the above-mentioned recording medium. (CM is called hereafter) The media information which adds the CM identification information which detects a portion and shows that it is a CM part to the detected CM part, and contains the CM part concerned is recorded

on a recording medium, When reproducing the recording medium with which the above-mentioned media information was recorded, it is recorded whether the above-mentioned CM part was reproduced correctly, at the time of elimination of the above-mentioned media information recorded on the above-mentioned recording medium, if the above-mentioned CM part is not reproduced correctly, elimination of the above-mentioned media information containing the CM part concerned is controlled, since it was made like, That is [ when a televiewer skips a CM part during program playback, / it cannot eliminate a program from a disk recording part ], the advantageous effect of the ability to make a televiewer certainly viewing and listening to a CM part is acquired even afterwards.

[0123]In the information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the recording medium in which random access is possible according to the invention of this invention according to claim 9, A CM part is detected out of the media information which it is going to record on the above-mentioned recording medium, The media information which adds the CM identification information which shows that it is a CM part to the detected CM part, and contains the CM part concerned is recorded on a recording medium, When reproducing the recording medium with which the above-mentioned media information was recorded, it is recorded whether the above-mentioned CM part was reproduced correctly, at the time of elimination of the above-mentioned media information recorded on the above-mentioned recording medium, if the above-mentioned CM part is not reproduced correctly, elimination to the CM part concerned is controlled, since it was made like, When a televiewer skips a CM part during program playback, only the CM part which is not played is left behind to a disk recording part, and a televiewer can be made to certainly view and listen to a CM part even afterwards. Since it leaves the CM part which is not reproduced from a televiewer's position and this editing portion can be deleted, the advantageous effect that a disc recording device can be used efficiently is acquired by summarizing a CM part.

[0124]In the information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the disk recording medium in which random access is possible according to the invention of this invention according to claim 10, While detecting a CM part out of the media information which it is going to record on the above-mentioned recording medium and connecting these editing portions in the media information which it is going to record, Connect CM parts, record on the above-mentioned recording medium, and only this editing portion of the above-mentioned media information carries out continuous reproduction only of the CM part, It is recorded whether the CM part was correctly reproduced at the time of reproduction of the above-mentioned media information, at the time of elimination of the above-mentioned media information recorded on the above-mentioned recording medium, if the CM part is not

reproduced correctly, elimination of the above-mentioned media information containing the CM part concerned is controlled, since it was made like, That is [ when the continuous reproduction of only this editing portion or a CM part is possible, and a televiewer does not watch a CM program, / it cannot eliminate a program from a disk recording part ], a televiewer can be made to certainly view and listen to a CM part even afterwards. If it sees from a televiewer, there is convenience [ editing / this ] that continuous reproduction is possible, and since the continuous reproduction of a CM part becomes possible for CM donor, the advantageous effect that the diversity of CM program creation can be given will be acquired.

[0125]In the information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the disk recording medium in which random access is possible according to the invention of this invention according to claim 11, While detecting a CM part out of the media information which it is going to record on the above-mentioned recording medium and connecting these editing portions in the media information which it is going to record, Connect CM parts, record on the above-mentioned recording medium, and only this editing portion of the above-mentioned media information carries out continuous reproduction only of the CM part, It is recorded whether the CM part was correctly reproduced at the time of reproduction of the above-mentioned media information, at the time of elimination of the above-mentioned media information recorded on the above-mentioned recording medium, if the CM part is not reproduced correctly, elimination of only the CM part concerned is controlled, since it was made like, That is [ when the continuous reproduction of only this editing portion or a CM part is possible, and a televiewer does not watch a CM program, / it cannot eliminate a CM part from a disk recording part ], a televiewer can be made to certainly view and listen to a CM part even afterwards. If it sees from a televiewer, while there is convenience [ editing / this ] that continuous reproduction is possible, Only this editing to which it viewed and listened is eliminated, a disc recording device can be used effectively, and since the continuous reproduction of a CM part becomes possible for CM donor, the advantageous effect that the diversity of CM program creation can be given is acquired.

[0126]In the information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the disk recording medium in which random access is possible according to the invention of this invention according to claim 12, the CM part in the media information which it is going to record on the above-mentioned recording medium is detected, the media information which it is going to record is recorded on the above-mentioned recording medium, and when reproducing the above-mentioned media information, the skip by a CM part is forbidden, since it was made like, That is [ the televiewer cannot skip a CM part during program reproduction ], the advantageous effect of the ability to make a televiewer certainly viewing and listening to a

CM part is acquired.

[0127]According to the invention of this invention according to claim 13, in the information storage regeneration method according to any one of claims 8 to 12 the above-mentioned media information, Come to add the flag which shows a CM part to a digital broadcasting signal, and and detection of the above-mentioned CM part, Since it was made like, the advantageous effect of being able to carry out, without making a mistake in detection of a CM part, adding restriction to reproduction of a CM part, namely, being able to make a televiewer certainly view and listen to a CM part even from the time of reproduction or after performed by detecting the above-mentioned flag is acquired.

[0128]In the information storage regeneration method which carries out record reproduction of the media information which contains either [ at least ] a digital image or a digital sound in the recording medium in which random access is possible according to the invention of this invention according to claim 14, the above-mentioned media information detects paid broadcasting or free broadcast, and if it is free broadcast, reproduction of the above-mentioned CM part will be secured with the information storage regeneration method according to any one of claims 8 to 12, since it was made like, The advantageous effect of adding restriction to reproduction of a CM part only at the time of free broadcast, namely, being able to make a televiewer certainly view and listen to a CM part even from the time of reproduction or after to a televiewer during program reproduction is acquired.

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[Translation done.]